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BIKEWAYS: DEFINITIONS

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MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS
BIKEWAYS PLANNING INFORMATION APRIL '75

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CREDITS

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DIRECTOR OF TRANSPORTATION PROGRAMS:
Paul W. Shuldiner

BIKESWAYS STUDY GROUP

UMASS

AUTHORS: Christopher Wren, Roman Petyk
and Joseph Lemanski

GRAPHICS COORDINATOR: Christopher Wren

FACULTY ADVISOR: Gustave Olson

BTP&D

STAFF: Kathie Davis Marotta



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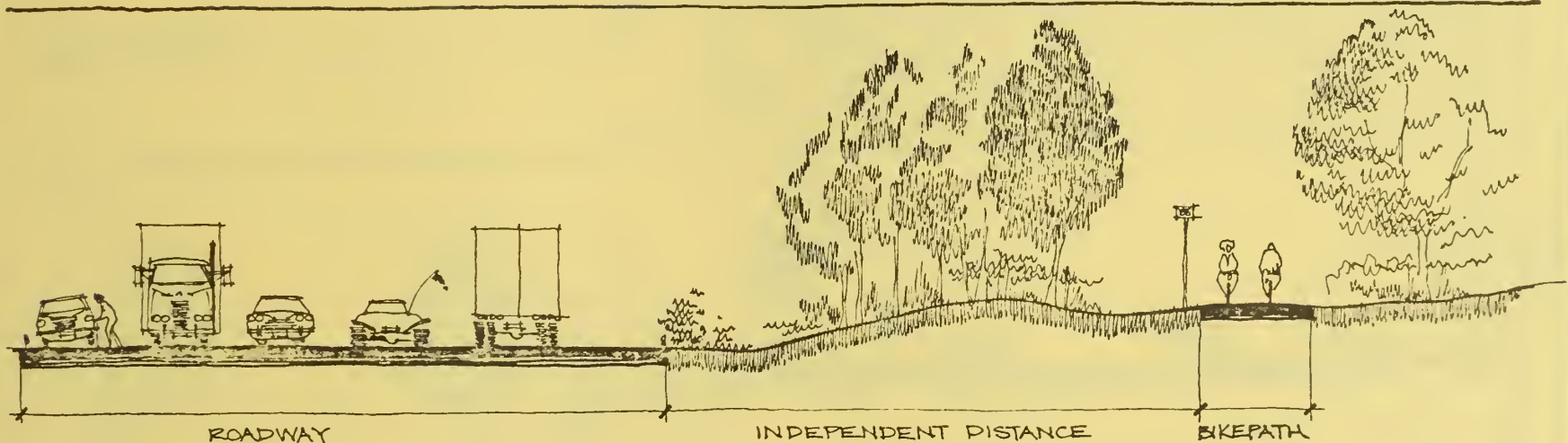
DEFINITIONS

The following definitions and additional material are intended to develop a broader understanding of the potential limitations and requirements inherent in various types of bicycle facilities.

Although the definitions are to some extent exclusive in that they refer primarily to bicycle and pedestrian facilities, they are only intended to provide planners with a common terminology for classifying facilities. The DPW encourages investigations of compatible multiple uses of bikeways.

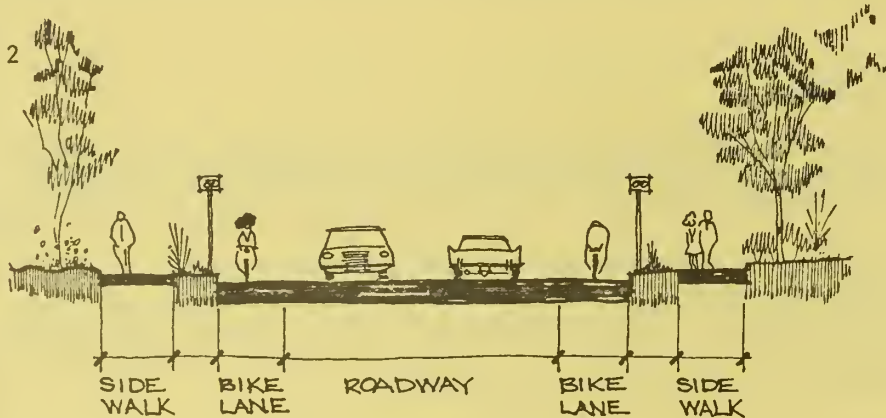
BIKEWAY IS A GENERAL TERM DESCRIBING ANY FACILITY RESERVED EXCLUSIVELY OR PREFERENTIALLY FOR BICYCLE TRAVEL OR A SHARED FACILITY WHICH ALLOWS SAFE AND COMFORTABLE BICYCLE TRAVEL.

bikeway

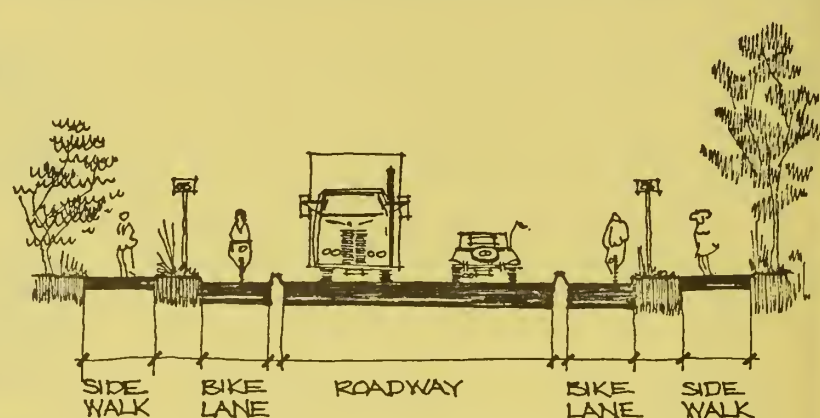


bikepath (PREVIOUSLY CALLED A "CLASS I")

BIKEPATH IS A COMPLETELY SEPARATE TRAVEL WAY FOR THE EXCLUSIVE USE OF BICYCLES. They may be either within an existing right of way or on a completely new right of way.



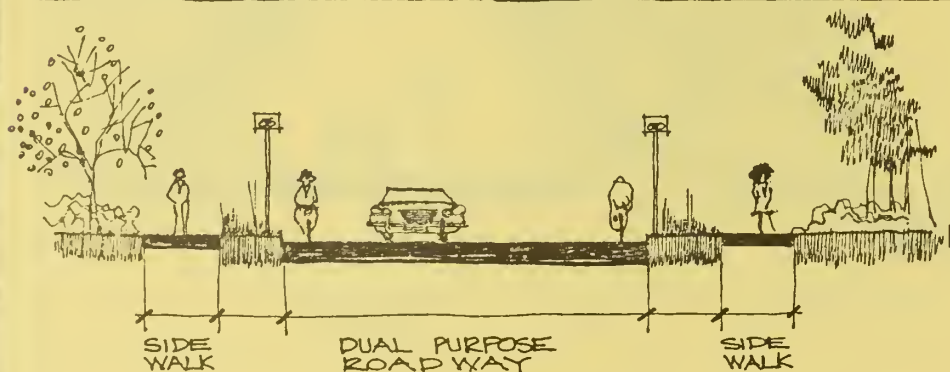
UNPROTECTED BIKELANE



PROTECTED BIKELANE

BIKELANE IS A PORTION OF THE ROADWAY SET ASIDE FOR EXCLUSIVE BICYCLE USE, DELINEATED BY VISUAL OR PHYSICAL BARRIERS. They may be either indicated by a painted line or change of material, outside or inside a row of parked cars, or separated from automobile lanes by a physical barrier.

(PREVIOUSLY CALLED A 'CLASS II') bikeline

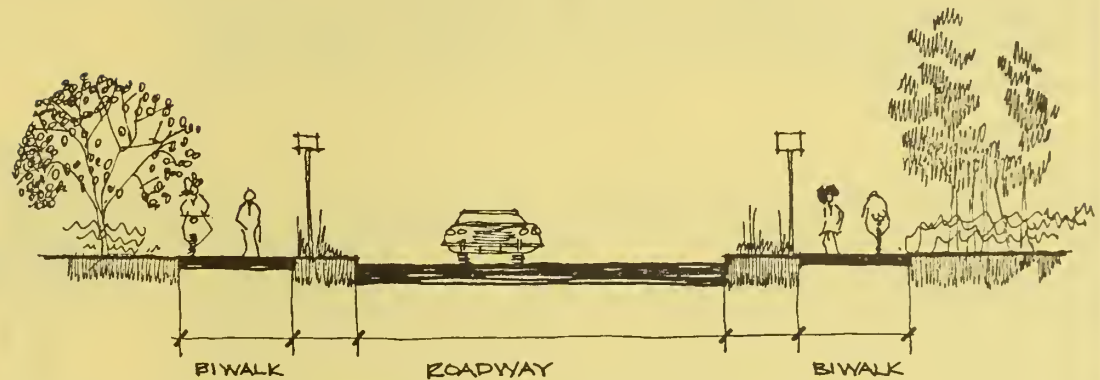


BIKEROUTE IS A TRAVEL WAY SHARED WITH AUTOMOBILES WHICH IS APPROPRIATELY CONSTRUCTED, MAINTAINED AND SIGNED FOR THE CON-venience AND SAFETY OF ALL USERS. They are roads of low intensity use which are suitable for multipurpose use.

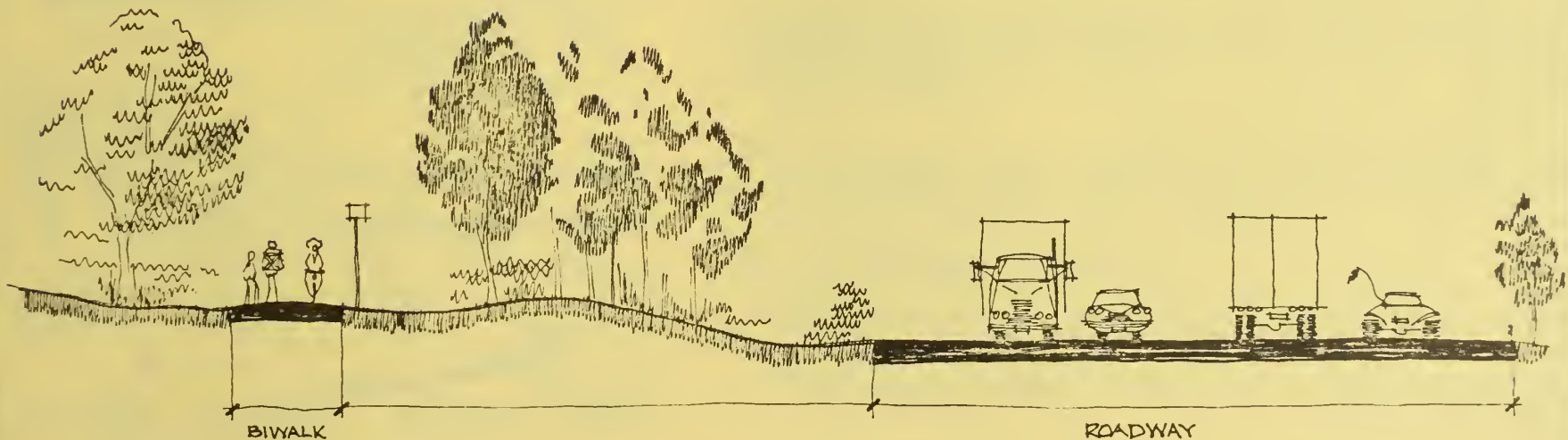
(PREVIOUSLY CALLED A 'CLASS III') bikeroute

biwalk

BIWALK IS A TRAVEL WAY SHARED BETWEEN CYCLISTS AND PEDESTRIANS WHICH IS APPROPRIATELY CONSTRUCTED, MAINTAINED AND SIGNED FOR THE CONVENIENCE AND SAFETY OF ALL USERS. They may be existing sidewalks that are converted for multiple use or separated paths built specifically for the purpose.



BIWALK - CONVERTED SIDEWALK



BIWALK - SEPARATED PATH

IMPLICATIONS OF DEFINITIONS

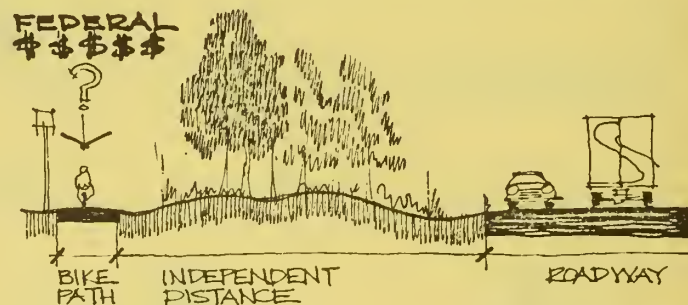
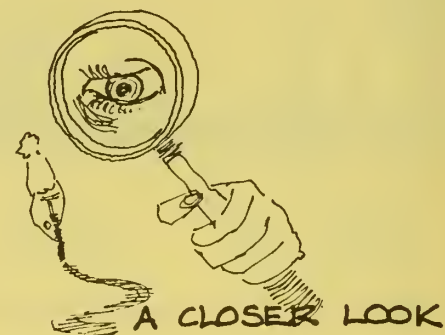
Although the primary consideration in bikeway construction has been cost and the safety of roadway users, other factors can significantly affect the way we view a proposal for a bikeway. The purpose of this section is to introduce some of these elements and suggest why they are relevant considerations. The intention is not to present any final judgements, but merely to generate ideas which will lead to a broader understanding of the constraints and opportunities inherent in the various types of bikeways.

BIKEPATHS

Recent changes in the U.S. Department of Transportation regulations provide that in certain circumstances, Federal Highway Trust Funds can be spent to purchase separate rights of way for bikeways. This relaxation of regulations broadens considerably the potential routes which a bikepath can follow and still receive federal funding under Section 124 of the Federal Aid Highway Act of 1973 (see: Federal Aid Highway Programming Manual: Transmittal 18, March 8, 1974).

As a result, possible federally funded routes for bikepaths may include not only existing highway rights of way, but also electrical and other utilities rights of way, areas adjacent to waterways (e.g., canals), abandoned railroad right of ways, and other purchased rights of ways.

In urban areas, bikepath construction can be undertaken as part of a broadscale effort to upgrade areas of the city or town in need of beautification. (An extremely exciting proposal of this sort is now being considered for Wichita, Kansas.) These areas could include riverfronts or blighted areas. The result of this sort of project can be not only an improvement for bicyclists, but also a change for the better in the overall city environment. Other potential areas for bikepath development include recreation areas, parks, and conservation areas.

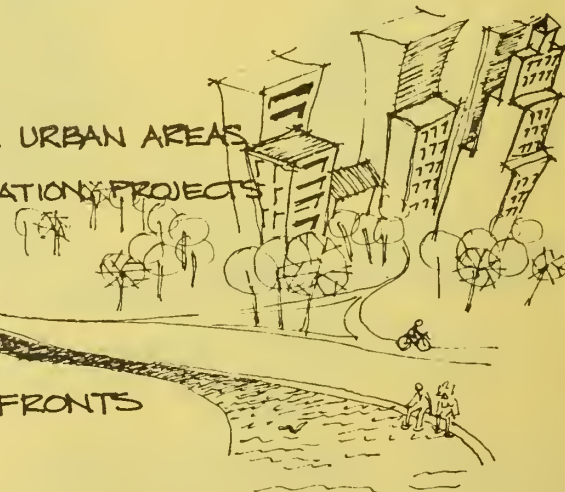


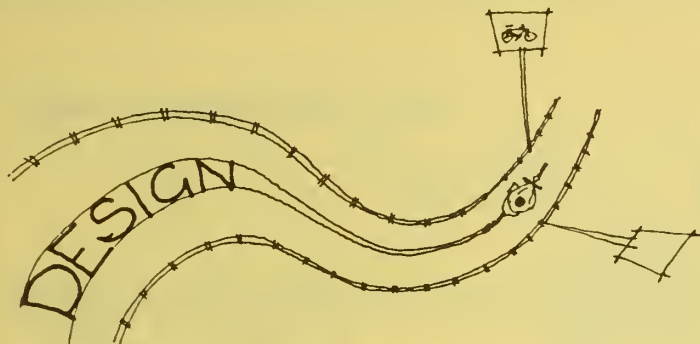
BIKES IN URBAN AREAS

RENUVATION PROJECTS

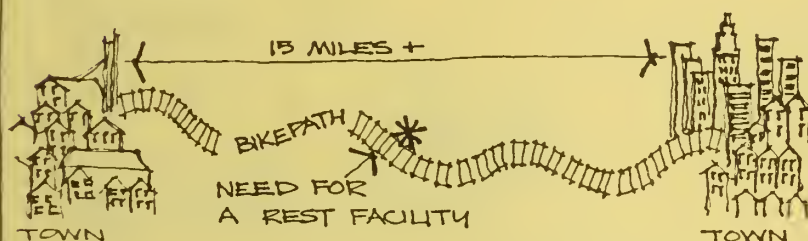
PARKS

USE OF RIVER FRONTS





Design considerations of bikepaths will be geared exclusively to bicycle users. Thus, grades, radii of curves and construction requirements will reflect the special non-motorized and slower character of bicycle travel. Also important are directional and cautionary signs, appropriate (properly scaled) lighting and the overall aesthetic qualities of the alignment. Grade crossings of bikepaths and roadways must be designed to insure adequate sight lines for both auto drivers and cyclists. This may include banning automobile parking in areas where sight lines would be interrupted.



In non-urban areas, bikepath planning must consider the cyclists need for rest facilities. Unless the route links nearby towns, special facilities will have to be provided.

In planning bikepaths, careful consideration of possible natural limitations will need to be undertaken since realization of the plan will require extensive groundbreaking and construction.

REGULAR MAINTENANCE

Another consideration in bikepath construction will be maintenance responsibility. This activity will require more thoroughness than it does on highways. To a bicyclist, even small potholes in the roadway and minor debris cause inconvenience and potential danger. Plans must include provision for frequent mechanical sweeping.

An unfortunate reality of our time is the need for extensive policing of public areas. Bikepaths will be no exception. A possible solution would be to equip the policeman assigned to the area with a bicycle or motor scooter.

Specific Advantages of Bikepaths

1. Provides the most safety against accidents with motorized vehicles.
2. Makes possible sufficient separation of bicyclists from existing roadways. This mitigates health hazards resulting from concentrations of exhaust fumes and diminishes apparent road noise levels.



SAFETY

HEALTH

3. If properly designed, a separated path will be more appealing than other types of facilities. Although they may be more costly in the short run, over the long run higher usage levels will justify these added costs.

JUSTIFIES COST

Limitations to Bikepath Development

1. In areas of intensive land use (e.g., centers of cities) there may be inadequate space for siting of completely separated bicycle facilities.
2. The initial cost of a bikepath is often higher than initial costs of other bicycle facilities. (As has been pointed out, increased usage could offset these higher initial costs.)



INADEQUATE SPACE
IN URBAN AREAS

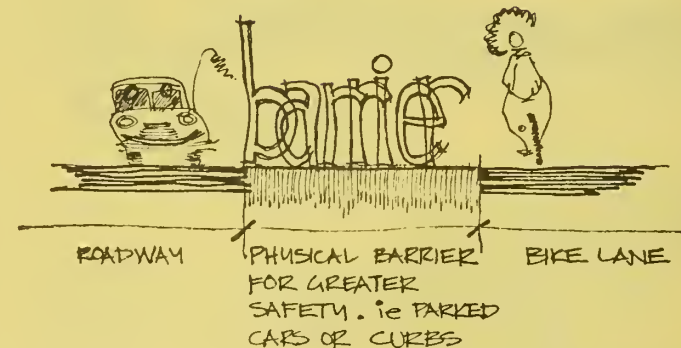
MORE \$

BIKELANE

Separate lanes exclusively for use by cyclists created on existing roadways can significantly increase the safety of cycling. These are appropriate where land is scarce but significant bicycle use exists.

SEPARATE BIKELANES

For greatest cyclist safety, a physical barrier between the lane and auto roadway should exist. This can easily be done by placing the parking lane between traffic and cyclists. Other solutions include use of planting boxes, curbs, parking lot bumper blocks, or other types of raised barriers. Simple lane stripes can also be appropriate. By altering parking regulations on a street and moving the center line of the road, it is often possible to create enough free space to accommodate a bikelane. There are a number of other acceptable possibilities. Although bikelanes will separate bicycles from parallel traffic, at intersections, hazards from turning vehicles and cross traffic exist. Cautionary signs and unobstructed sight lines are required for motorists', as well as cyclists', safety. The safest intersections for bikelanes are those with traffic signals.

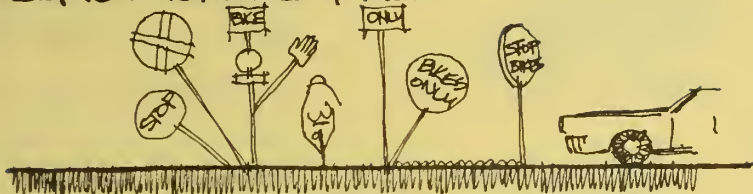


BARRIER FOR SAFETY

Recent studies show that even along bikelanes where there is no physical barrier, traffic moves faster and more smoothly than on bikeroutes. The presence of a lane stripe appears to make

TRAFFIC MOVES FASTER ON ROADS
WITH BIKELANES THAN ON BIKEROUTES

SIGNS FOR BIKES & AUTOS



automobile drivers more comfortable about being on the same street with bicyclists.

Drivers as well as cyclists must be clearly informed of their responsibilities on a street with bikelanes. This would require informational signs for motorists reading: "BIKELANE - BIKES ONLY".

Specific Advantages of Bikelanes

1. Provides for separation of autos and bicycles in areas where spatial constraints exist.
2. Lower construction costs than for a separated path.
3. Allows for safe bicycle access to intensively used central city streets and areas.
4. Easier to maintain and police than separated paths.
5. Generally use existing rights of ways.

Specific Disadvantages of Bikelanes

1. On narrower streets, parking may need to be prohibited on one or both sides of the street to accommodate a bikelane,
2. Confusion regarding parking regulations or their disregard could cause blockage of a bikelane.
3. Use of two way lanes would cause a safety hazard at the end of a route and at intersections where drivers would not expect bicycles approaching from the right.

RELATIVELY SAFE

LESS \$

SUITABLE FOR
URBAN AREAS



EASIER TO MAINTAIN & POLICE

USE EXISTING R.O.W.

MAY EFFECT PARKING.



POSSIBLE CONFUSION

TWO-WAY LANES UNADVISABLE

AIR POLLUTION &

NOISE

4. Riding on bikelanes, cyclists are exposed to air pollution and noise of automobiles and other vehicles. Recent studies show that exposure to high levels of pollutants while exercising is potentially extremely harmful (AIP Journal - March 1974).

5. A thorough drivers' and cyclists' education program is necessary to avoid confusion and ensure the proper use of bikelanes.



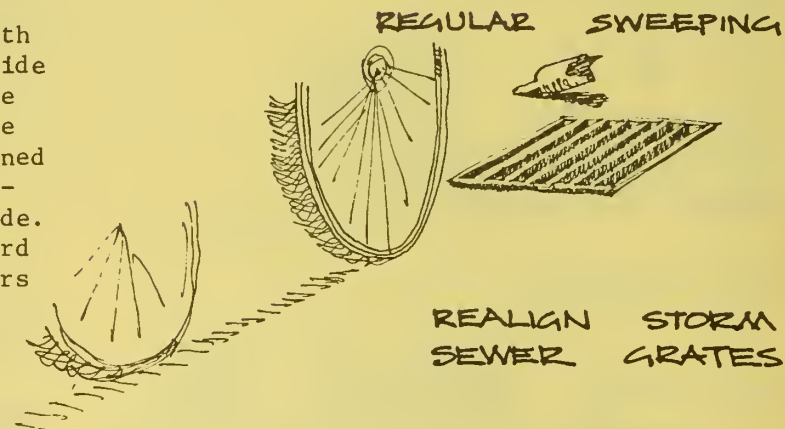
SAFETY EDUCATION
PROGRAM NEEDED

BIKEROUTES

Although the marking of bikeroutes is a fairly popular way of attempting to provide for the safety and convenience of cyclists, the usefulness of this approach is limited and indeed can often produce less than desirable results. However, when properly planned, a signed "bikeroute" can improve rider safety.

BIKEROUTES CAN IMPROVE SAFETY

On a shared route, cyclists will travel near the curb-side with no barrier between motor vehicles and bicycles. Since curb-side areas generally accumulate rubbish and hazardous material, the signed route must be swept frequently so that cyclists will be able to safely ride close to the curb. Roadways that are signed as "bikeroutes" must also be carefully maintained. During re-surfacing, storm sewers must be raised to the new roadway grade. (The popular practice of sloping the new roadway surface toward sewers is dangerous to cyclists.) The gratings on storm sewers should be so aligned as to enable cyclists to ride over them safely.



Cross streets should be marked to caution drivers that they are approaching a "Bikeway Crossing". Considerable safety advantages would accrue if the following traffic regulations were enforced:

1. Requiring cyclists to ride in single file only.
2. Prohibiting stopping at curbside by autos except in emergencies.
3. Requiring autos to yield to cyclists when making right turns.

These and other responsibilities of cyclists and drivers should be made clear through an education program in the community. Paying careful attention to the details outlined above can make

SAFETY EDUCATION PROGRAM

INCOMPATIBILITIES WITH BIKE ROUTES



BIWALKS ON SEPARATED PATHS

signed routes a significant safety improvement for cyclists rather than merely providing a false sense of security as is often the case.

Although bikeroutes can be used as an inexpensive way of re-directing bicycles away from congested city streets, research shows that few cyclists are willing to travel out of their way for such a limited gain. As a result, expenditures for this type of route may not be worthwhile.

In any case, the inherent problems arising from the juxtaposition of incompatible means of transit are none-the-less most strongly experienced in a bike-route situation. The hazards resulting from wind drafts of passing vehicles, blowing road dust, air and noise pollution can make a bike-route quite inconvenient and unpleasant.

BI-WALK

Shared pedestrian/bicyclist facilities have become popular in some parts of Massachusetts. This is an appropriate solution in areas where there is heavy high speed roadway traffic or limited pedestrian or bicycle traffic. In order to be safe for both cyclists and pedestrians, the bi-walk must be of sufficient width with a visual barrier between pedestrian and cyclists zones. Curb cuts at cross streets are required. Signs should indicate the potential presence of both cyclists and pedestrians and also inform cyclists that they must yield to pedestrians. Cross streets should be properly signed to caution drivers that they are approaching a "Bicycle (or Bike-Way) Crossing".

The possibility of biwalks on completely separated rights of ways should be considered. In this case, maintenance and policing considerations will be similar to those existing on bikepaths.

PARKING AND SECURITY

Since provisions of any type of bicycle facility will increase cycling in the area, local governments, school boards, and private groups (e.g., Chambers of Commerce or individual merchants), should be encouraged to provide parking and locking facilities in appropriate areas. These would include schools along the route, shopping areas, tourist attractions, as well as bus and train stations where large numbers of people may switch from bicycles to another means of transport.

